

This listing of claims replaces all prior versions, and listings, of claims in the present application.

Listing of Claims:

1. (Currently Amended) An active pixel sensor comprising:

a substrate;

a P-well fabricated within said substrate;

a photoreceptor fabricated within said substrate and outside said P-well;

an NMOS frame shutter wherein the frame shutter is a NMOS frame shutter in an P-well, fabricated within the P-well; and

an active pixel readout for receiving charges from said NMOS frame shutter.

2. (Canceled).

3. (Previously Presented) The active pixel sensor of Claim 1, wherein the frame shutter includes sample and hold and reset circuits.

4. (Previously Presented) The active pixel sensor of Claim 3, wherein the sample and hold and reset circuits comprise NMOS transistors.

5. (Canceled).

6. (Canceled).

7. (Withdrawn) An active pixel sensor comprising:

a photoreceptor, wherein the photoreceptor comprises a pinned photodiode;

a frame shutter, wherein the frame shutter is a PMOS frame shutter in a N-well; and

an active pixel readout.

8. (Canceled).

9. (Withdrawn) The active pixel sensor of Claim 7, wherein the frame shutter includes sample and hold and reset circuits.

10. (Withdrawn) The active pixel sensor of Claim 9, wherein the sample and hold and reset circuits comprise NMOS transistors.

11. (Canceled).

12. (Canceled).

13. (Currently Amended) An active pixel sensor comprising:

a substrate;

a P-well fabricated within said substrate;

a photoreceptor, wherein the photoreceptor comprises a pinned photodiode;

~~a frame shutter, wherein the frame shutter comprises an~~ NMOS frame shutter
fabricated in a said P-well;

and

an active pixel readout circuit for receiving charges from said NMOS frame shutter.

14. (Currently Amended) The active pixel sensor of Claim 13, wherein the frame shutter includes sample and hold and reset circuits, and wherein the pinned photodiode is fabricated within said substrate and outside said P-well.

15. (Original) The active pixel sensor of Claim 14, wherein the sample and hold and reset circuits comprise NMOS transistors.

16. (Canceled).

17. (Canceled).

18. (Canceled).

19. (Canceled).

20. (Currently Amended) An active pixel sensor comprising:

a substrate;

a P-well fabricated within said substrate;

a photoreceptor fabricated within said substrate and outside said P-well;

an active pixel readout circuit, comprising source follower and row select transistors;

and

an NMOS frame shutter comprising sample and hold and reset circuits, ~~wherein the frame shutter is fabricated within the P-well, and~~ wherein the sample circuit is in direct electrical connection to the source follower transistor of the active pixel readout circuit.

21. (Previously Presented) The active pixel sensor of Claim 20 wherein the photoreceptor is a pinned photodiode.

22. (Previously Presented) The active pixel sensor of Claim 20 wherein the sample and hold and reset circuits are NMOS transistors.

23. (Withdrawn) An active pixel sensor comprising:

a photoreceptor comprising a pinned photodiode;

an active pixel readout circuit, comprising source follower and row select transistors;

and

a PMOS frame shutter comprising sample and hold and reset circuits, wherein the frame shutter is in an N-well, and wherein the sample circuit is in direct electrical connection to the source follower transistor of the active pixel readout circuit.

24. (Withdrawn) The pixel sensor of Claim 23 wherein the sample and hold and reset circuits are PMOS transistors.

25. (New) An integrated pixel sensor comprising:

a substrate;

a P-well fabricated within said substrate;

a photoreceptor fabricated within said substrate and outside said P-well;

a frame shutter fabricated in said P-well, said frame shutter comprising a storage node for receiving charges from said photoreceptor and a transistor for sampling charges from said photoreceptor on to said storage node; and

a readout circuit for receiving charges from said storage node and providing a readout signal.

26. (New) The integrated pixel sensor of Claim 25, wherein the transistor for sampling charges is an NMOS transistor.

27. (New) The integrated pixel sensor of Claim 25, wherein the photoreceptor is a pinned photodiode.

28. (New) An integrated pixel sensor comprising:

a substrate;

a P-well fabricated within said substrate;

a photoreceptor fabricated within said substrate and outside said P-well;

a frame shutter fabricated in said P-well, said frame shutter comprising a sample circuit for receiving charges from said photoreceptor and sampling charges from said photoreceptor on to a storage node; and

a readout circuit for receiving charges from said storage node and providing a readout signal, said readout circuit comprising an active pixel readout circuit in direct electrical connection to said sample circuit.

29. (New) The integrated pixel sensor of Claim 28, wherein the sample circuit comprises an NMOS transistor for receiving said charges.

30. (New) The integrated pixel sensor of Claim 28, wherein the photoreceptor is a pinned photodiode.